



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

Studies in the Asclepiadaceae.—IV

BY ANNA MURRAY VAIL

I. NOTES ON SOME OLD TYPES, WITH DESCRIPTIONS OF NEW OR LITTLE KNOWN SPECIES

ASCLEPIAS SCAPOSA Vail, Bull. Torr. Bot. Club, **25**: 171. 1898

On a specimen of this species in Wright's New Mexican collection, no. 1683 in part, preserved in the Herbarium of the British Museum, I was fortunate to find a somewhat mature but complete flower, which through the courtesy of Mr. James Britten I was permitted to examine closely, so that to my former description I am able to add the following:

Corolla-segments 5 mm. long, apparently white; column short and broad; hoods of the corona barely exceeding the anthers, 2–2.5 mm. high, white or whitish, slightly pendulous or saccate at base, 5-dentate at the apex; central tooth rounded, the intermediate teeth acutish, the two ventral ones infolded, erect, slender, attenuated, nearly twice as long; horn arising from about the middle of the hood, slender, exserted; anther-wings salient and somewhat rounded at the base, apparently entire.

In floral structure allied to *A. quinquedentata* Gray and to *A. Palmeri* Vail, but its low habit and solitary terminal peduncle are, with few exceptions, rather unusual in the genus. I have seen only four specimens of it, the one in the Herbarium of Columbia University (Wright, no. 1684 in part), a fragment in Herb. Gray from the same collection (no. 1683 in part), the specimen mentioned above, and the one referred to below. In the first three cases it has been distributed with *A. longicornu* Benth. and *A. parviflora* Willd. (*A. perennis parvula* Gray). The fourth specimen is in the Herbarium of the Missouri Botanic Garden and is on a sheet with a specimen of (probably) *A. longicornu* Benth. in fruit only, the label bearing the following inscription: "No. 7, *Ascl. longicornu*, Wright, 1851."

***Asclepias parvula* (A. Gray)**

Asclepias parvifolia Willd.? Torr. Mex. Bound. Surv. 164. 1859. Not Ait. 1789.

Asclepias perennis var. *parvula* (A. Gray) Proc. Am. Acad. **12**: 70. 1876.

Asclepias nivea Hemsl. Biol. Centr. Am. **2**: 325 and **4**: 69. 1881-2. Not Linn. 1753.

Pale gray-green throughout. Stem woody at the base, 3 dm. high, or more, erect, pubescent, often branched above: leaves short-petioled; blades lanceolate or oblong-lanceolate, tapering at each end, 4-6 cm. long, rather thick and coriaceous, glabrous or minutely puberulent above, puberulent beneath on the veins and revolute margins: peduncles 3-9, terminal and lateral, 1-4 cm. long; umbels 10-20-flowered: corolla white, small; column slender; hoods hastately sagittate at the base, not exceeding the anthers; horn falcate, thin, exserted, inflexed over the anthers: anther-wings narrow, entire at the salient base: follicles slender-fusiform, tapering to each end, 7-9 cm. long, glabrous: seeds 7 mm. long, red-brown, very thin, glabrous; coma 2-3 cm. long, abundant.

Mexican Boundary Survey, Head of Rock Creek, Bigelow, July 7, 1852; "*New Mexico*," Wright; *Texas*: Havard, Neally; *Mexico*: Palmer, no. 812.

The Wright specimen [no. 1684 in part] enumerated here is in the Herbarium of Columbia University. No. 1683, also of Wright's collection, contains besides *A. parvula* some specimens of *A. longicornu* Benth. (the plant since described as *Podostemma Emoryi* Greene, Pitt. **3**: 237), and some specimens of *A. scaposa* Vail.

Stelmagonum ? Holtonii

A low perennial herb. Root slender, vertical: stems slender, twining above, granular-puberulent and thinly hirsute with stiff spreading hairs, the lower portion with small corky-barked ridges: leaves opposite, on slender, granulose-puberulent and hirsute, 1.5-2.5 cm. long petioles; blades ovate-cordate, 3-4 cm. long, 1.5-2 cm. wide, acuminate at the apex, basal lobes rounded with narrow open sinus, granular-puberulent and with a few scattered short stiff hairs above, granular-puberulent and with more numerous stiff hairs beneath, especially on the veins, margins ciliate: flowers 4-7 in short-peduncled bracteolate cymes: peduncles axillary, 3 cm. long; pedicels 4-5 mm. long, the bracteoles subulate, very small, persistent: calyx 5-parted to below the middle, 2-3 mm. long, granular-puberulent and ciliate; segments acuminate, with an erect subulate gland in each sinus: corolla campanulate, 7-8 mm. long? or more, 5-parted to a

little below the middle, minutely granular-puberulent on the outer surface; segments oblong, obtuse, glabrous within; crown cohering to the corolla and to the raised gynostegium, cup-shaped, 5-lobed, each lobe abruptly contracted into a slender, linear 1 mm. long, erect ligule: stigma rounded, scarcely depressed: pollinia orbicular, horizontal or ascending on rather broad, winged caudicles; corpuscle nearly rhombic. Follicles not seen.

New Grenada: Goudot; Flora Neogranadina-Magdalena, I. F. Holton, Opia, no. 461, Dec., 1852.

Both of these specimens are in the Kew Herbarium and a duplicate of the Holton number is in the Herbarium of Columbia University.

Mellichampia ligulata (Benth.)

Enslenia ligulata Benth. Pl. Hartw. 290. 1848.

Mellichampia rubescens A. Gray; S. Wats. Proc. Am. Acad. 22: 437. 1887.

For some time past I have suspected the identity of *Mellichampia* with *Enslenia ligulata* and through the courtesy of the Director of the Royal Gardens at Kew, I have obtained a tracing of the type of the latter plant which confirms the suspicion. Besides the type from Aguas Calientes, South Mexico, it has been collected in the State of Jalisco, at Guadalajara, by Dr. Palmer, no. 280, July–October, 1886, and by C. G. Pringle, in copses near Guadalajara, no. 5432, Aug., 1893. Mr. Hemsley (Biol. Centr. Am. 2: 358) also quotes a specimen without locality from Herb. Pavon as belonging to this species. The specimens distributed as *Enslenia ligulata* by Pringle (no. 4494) and *Ampelanus ligulata* by A. A. Heller (no. 1899) are species of *Roulinia*.

II. THE TYPES OF GONOLOBUS MICHAUX AND DESCRIPTIONS OF NEW SPECIES IN VINCETOXICUM WALTER

The types of the three species of *Gonolobus* (Michx. Fl. Bor. Am. 1: 119) are preserved in the Herbarium of the Museum in the Jardin des Plantes, Paris, where they are represented by several specimens each, all in a somewhat fragmentary condition, though quite recognizable and agreeing with the descriptions. In the Richard Herbarium (Herbarium of M. Drake del Castillo, Paris) the actual specimens owned and described by Richard in the Fl. Bor. Am. can be seen and they are in every way exact duplicates

of the plants in the Michaux Herbarium proper, but are apparently more carefully labeled and named than those in the Museum. These last were annotated by Dr. Gray. The first sheet there has as inscription "*Cynanchum macrophyllum capsulis angulosis*" and is apparently the plant previously named *Vincetoxicum gonocarpos* Walt. and the plant which Dr. Gray (Proc. Am. Acad. 12 : 75) recognized as *Gonolobus lacvis* var. *macrophyllus*. The specimen in the Richard Herbarium has the name "*G. macrophyllus*" and habitat "*In silvis Caroliniae*" on the sheet and is the same plant as the one in the Herb. Michaux.

The second species, *Gonolobus hirsutus*, is more difficult of determination as of course I was not able to make a dissection of the flower and the species is not so readily recognized as the first. There are muricate follicles in both collections and in Herb. Richard two racemes, one dark purple and the other very faded, dull greenish and shrunk; the leaves are large and the plant could be referred as readily to *G. Carolinensis* as to *G. hirsutus*. It is apparently identical with the plants that have been named *G. hirsutus* var. *flavidulus*. (See plants collected by Dr. Mellichamp at Bluffton, S.C., and so named by Dr. Gray). Since seeing these types, I have examined a long series of the *G. hirsutus* and var. *flavidulus* and also *G. Carolinensis* and have come to the conclusion that it will take very critical study and much more material, especially fresh material, to determine whether there are really two species there or only one. The coronal characters are difficult to reach in the dried plants and in the specimens which have passed through my hands I have found every form of crenation, both regular and irregular and great variation in the thickness of the crown-margin and also numerous instances in which the thickened alternate crenations have a very pronounced horn-like process within. Sometimes these last characters showed themselves in all stages of development from a faint obscure ridge near the apex of the crown-segment to a sharply incurved tooth. These again were to be found on one or two of the segments and again on every one of them. So far as I have been able to note, these characters are constant on the same plant. In some specimens the crown is uniformly thin, entirely lacking the alternate thickened divisions of the descriptions, others again have the thin geminate teeth

claimed for *G. Carolinensis* and the quadrate alternate divisions belonging to *G. hirsutus*. It seemed entirely impossible with the material at hand to draw any fast or hard line between them. The pollinia that have very marked characters in the other species seem to be about the same in these two species and I could not find any differences between those of the flowers labeled *G. hirsutus* and of those called *G. Carolinensis*.

These two Michauxian species constituted the older genus *Vincetoxicum* of Walter which leaves the third species *G. laevis* as the type of the genus *Gonolobus*.

The type of *Gonolobus laevis* is somewhat of a curiosity. There is quite a good deal of it, small pieces mostly, but all of the specimens in the two collections agree and point unmistakably to the plant since called *Enslenia albida* Nutt. (*Ampelanus albida* Britt., Bull. Torr. Bot. Club, 21: 314). In the Michaux Herbarium there are on a sheet a small specimen of *G. suberosus*? (the name and query are in Dr. Gray's* handwriting), one angled follicle and one raceme, noted as *G. laevis*, also by Dr. Gray, and two more leaves and two follicles. The old labels read "*Cynanchum capsulis laevis*" and "*Gonolobus laevis, Illinois*." In the Richard Herbarium the specimens, consisting of some leaves and one angled follicle, are much worm-eaten. They are all, except the fragment of *G. suberosus*, *Enslenia albida*. This will clear up the discrepancy of the original description of *G. laevis* with the plants that have passed as such. "*Foliis quasi conoideo-cordatis, sensim acutis nervis tantum minutissime puberulis*" describes certainly the leaves of *Enslenia albida*, but scarcely accurately those of the so-called *Gonolobus laevis*. The synonymy of this plant should therefore be as follows:

GONOLOBUS LAEVIS Michx. Fl. Bor. Am. 1: 119. 1803

Enslenia albida Nutt. Gen. Am. 1: 164. 1818.

Ampelanus albidus Britton, Bull. Torr. Bot. Club, 21: 314. 1894.

* *Gonolobus suberosus* and *G. macrophyllus* are very close in general appearance, though the former has commonly yellowish-green leaves, with truncate base, and the latter darker green leaves that have notably large rounded basal and often overlapping lobes.

The type of this species is from Illinois, where it is not infrequently met with on river-banks and in thickets. It has a wide range, eastward and southward. The specimen quoted from Washington, D. C., as *Vincetoxicum gonocarpus laevis* in Britton & Brown, Illustrated Flora, 3: 18, is in fruit and is the true *Gonolobus laevis* Michx. (Herb. Columbia University).

A second species **Gonolobus volubilis** (*Nematuris volubilis* Turcz. Bull. Soc. Nat. Imp. Mosc. 21: 254. 1848. *Enslenia volubilis* Karst. Fl. Columb. 2: 117. Pl. 162. 1866) occurs near Pt. Cabello, U. S. of Colombia.

VINCETOXICUM SUBEROSUM (L.) Britt., Mem. Torr. Bot. Club, 5: 266. 1894.

Cynanchum suberosum L. Sp. Pl. 212. 1753. Dill. Hort. Elth. 300. pl. 229. f. 296, excluding Hort. Cliff. and Gron. 27.

Gonolobus suberosus R. Br. Ait. Hort. Kew. ed. 2, 82. 1811.

Dr. Gray * has written the history of this species and in addition to his notes it may be of interest to point out that the plant "*Apocynum scandens fruticosum fungoso cortice Brasilianum*." Herm. Parad. 53 is probably the plant since referred to *Ibatia*, and is not the specimen of the Hortus Cliffortianus which resembles it only as to the corky, ridged bark of the stems. The Clifford plant can be seen in the Herbarium of the British Museum and is difficult to identify as it is a mere fragment, but the character of the stem should make it easily recognizable were there more available material of the same species for comparison.

I venture to describe the following species as new.

Vincetoxicum Floridanum.

Puberulent throughout. Stems very slender, hirsute with few short, scattered hairs: leaves opposite; petioles 5–20 mm. long, angled; blades ovate, 2–5 cm. long, cordate, tapering to the acuminate apex, the basal lobes rounded, with open sinus, about equally puberulent with a fine soft pubescence on both surfaces; midvein obscurely bi-glandulose at the base above: racemes about the length of the petioles; pedicels 12 mm. long: calyx very small; segments 2 mm. long, linear-lanceolate, with a subulate gland in each sinus: corolla dull greenish-purple, 5-parted to a little below the

* Proc. Am. Acad. 12: 75. 1876.

middle; segments linear-lanceolate, acute, 3-5 m. long, somewhat fleshy, minutely puberulent, on the outer surface, glabrous within; crown red-purple, saucer-shaped, with 5 broad undulations each bidentate at the callous thickened apex, and a smaller tooth on each side below the middle: stigma depressed, not 5-angled: pollinia oblong, the caudicles broad and apparently not twisted? Follicles not seen.

East Florida: Dr. Leavenworth.

The specimen from which this description has been drawn is in the Herbarium of Columbia University and was labeled by Dr. Torrey, *Gonolobus* "*macrophyllus*." It was seen by Dr. Gray when he was working on the Asclepiadaceae for the Synoptical Flora and bears his note to the effect that it has "short denticulate lobes" and on the Synoptical Flora label the doubtful one of "seemingly *Gonolobus Carolinensis*." It differs however from that species, as elsewhere ticketed by Dr. Gray in its much smaller, greenish flowers, and the crown which has not the regular divisions of that of *Vincetoxicum Carolinensis*, but especially in the inflorescence which is irregularly racemose, whereas that of *V. Carolinensis* is more cymose and much longer pedicelled.

Vincetoxicum crenatum

A twining vine. Stems somewhat angled, papillose-puberulent and retrorsely hirsute with scattered short hairs: leaves opposite, on slender, striate, 3-5 cm. long petioles; blades yellowish-green, 6-9 cm. long, ovate, rather long-acuminate at the apex, cordate, basal lobes rounded with open or closed sinus, papillose-puberulent on both surfaces, paler beneath: inflorescence sub-corymbose; peduncles 5-8 cm. long, 4-10-flowered; pedicels slender, 8-15 mm. long, 1-2 bracteolate at base: calyx-segments ovate, acutish, puberulent outside, ciliate, glabrous, and with a subulate gland in each sinus within: corolla 13-14 mm. long, dull yellowish purple, rotately spreading, ovate-conic in bud; segments linear-oblong, acutish, puberulent outside, glabrate within and vertically reticulated, sparingly and minutely hirsute below the sinus, transversely wrinkled and glabrous in the short tube: crown shallow, saucer-shaped, 5-crenate; lobes rounded, not exceeding the anthers, each with a short, barely free internal process or appendage at about the middle; process truncate at the apex: stigma 5-angled, not depressed: anther-appendages small, fleshy; pollinia obliquely semi-orbicular, saccate and broader at the summit, dented at the angled base, caudicles and corpuscles short. Follicles not seen.

Mexico: Barranca near Cuernavaca, State of Morelos, Pringle, no. 6388, July 27, 1895.

Distributed as *Gonolobus pilosus* Benth. Resembling in habit *Gonolobus angustilobus* Rob. & Greenm. (Proc. Am. Acad. 29 : 388. 1894) from the State of Jalisco, but differing in its yellowish-green foliage, the more numerous flowers and the curiously reticulated character of the corolla. The leaves of *G. angustilobus* are grayish-green, the flower appears to be solitary and the corolla is not at all reticulated. Detailed floral characters of this last species, owing to lack of material, are not accurately known.

In regard to the true *Gonolobus pilosus* Benth. (Pl. Hartw. 289. 1848) it is perhaps worth noting that a specimen collected by Dr. Coulter, in Mexico, no. 975, is preserved in the Herbarium of Columbia University. This number is quoted by Hemsley (Biol. Centr. Am. 2 : 333) as belonging to *Gonolobus pilosus* Benth. It coincides in every respect with the description of that species. The flowers are at least 3.5 cm. in diameter when open, and are of a dark, dull reddish-purple. The calyx-segments and bracteoles are over 13 mm. long, ovate, acutish and foliaceous. The crown is barely 5-parted, lacerate-denticulate along the whole margin, each division with an adnate, thickened internal appendage which is lacinate and barely free at the broadly quadrate summit. The pollinia are remarkably large, obliquely oblong, rounded at the base and somewhat saccate, slightly tapering to the curved caudicles; corpuscle broadly obovate at the apex, abruptly contracted to the much narrower rounded base. The hyaline anther-tips are conspicuously large.

Vincetoxicum Greggii

Gonolobus productus Torr. Mex. Bound. Surv. 165. 1859. In part.

A slender, twining vine. Stems minutely puberulent and hirsute with short scattered hairs; leaves opposite; petioles 5-15 mm. long; blades 1.5-3 cm. long, or more, ovate-hastate, long-acuminate at the apex, the basal lobes rounded with open sinus, rather thick, papillose-puberulent on both surfaces; inflorescence subcorymbose; peduncles 1.2 cm. long, 5-8-flowered; calyx 2 (?) mm. long, minutely hirsute; segments ovate-triangular, acute, with a subulate gland in each sinus; corolla subrotate, 6-7 mm. long;

crown 5-parted, to below the middle; segments thick and fleshy, broadly rounded at the apex, each with an internal ligulate horn or process arising from near the base, exceeding the anthers and incurved over them: stigma 5-angled: pollinia quadrate on slender, winged caudicles, corpuscle narrowly oblong. Follicles not seen.

"Slender vine-like plant, flower purplish," Cadena, Mexico, Dr. Gregg, May 8, 1847.

The specimen described here is in the Herbarium of Columbia University and was included by Dr. Torrey in his description of *Gonolobus productus* and was ticketed under that name by Dr. Gray when he revised the Torrey Collection for the Synoptical Flora. It is closely allied to **Vincetoxicum acuminatum** (*Gonolobus acuminatus* A. Gray, Proc. Am. Acad. 21: 399. 1888-6) as well as to **V. productum** (*Gonolobus productus* Torr.) All three species belong in Dr. Gray's section *Chthamalia* and without careful dissection could scarcely be distinguished one from the other, except that *V. Greggii* has a more rotately spreading corolla than its congeners.

There are marked differences in the pollinia of the three species. In *V. productum* the pollinia are spreading and perhaps subpendulous, obliquely oblong, twisted (?) and somewhat bent or dented at the middle; the caudicles are apparently winged and the corpuscle is oblong, also appearing as if winged. The pollinia of *V. acuminatum* are more truly horizontal, subovoid, rounded on one side and straight on the other, on broad caudicles, with a broad corpuscle. *V. Greggii* has ovoid-quadrate pollinia, with very slender, somewhat twisted caudicles and a slender oblong corpuscle. In this last species the leaves are smaller than in the two others, the corolla is more rotately spreading, the crown is more deeply parted and the internal ligules are free and incurved over the anthers. The pollinia and crown characters of *V. Greggii* are also nearly those of *Gonolobus bifidus* Hemsley, but in that species the corolla is much smaller and truly rotate. In *V. acuminatum* the crown-segments are quadrate at the apex and the internal processes are short, barely free at the apex.